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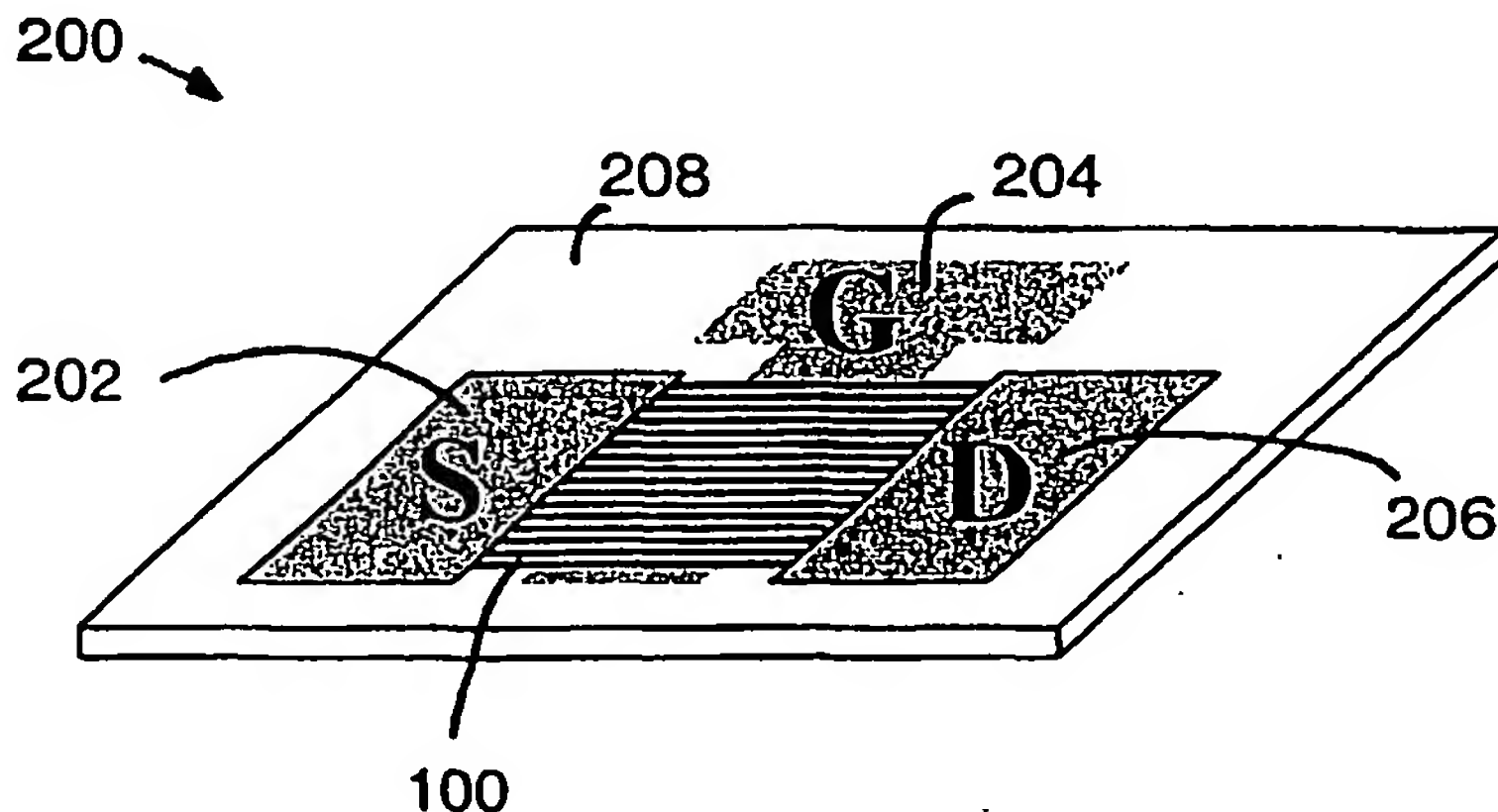
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(54) Title: LARGE-AREA NANOENABLED MACROELECTRONIC SUBSTRATES AND USES THEREFOR



(57) Abstract: A method and apparatus for an electronic substrate having a plurality of semiconductor devices is described. A thin film of nanowires is formed on a substrate. The thin film of nanowires is formed to have a sufficient density of nanowires to achieve an operational current level. A plurality of semiconductor regions are defined in the thin film of nanowires. Contacts are formed at the semiconductor device regions to thereby provide electrical connectivity to the plurality of semiconductor devices. Furthermore, various materials for fabricating nanowires, thin films including p-doped nanowires and n-doped nanowires, nanowire heterostructures,

light emitting nanowire heterostructures, flow masks for positioning nanowires on substrates, nanowire spraying techniques for depositing nanowires, techniques for reducing or eliminating phonon scattering of electrons in nanowires, and techniques for reducing surface states in nanowires are described.

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